

IN THE CLAIMS:

In line 1, delete ~~Claims~~ and insert:

C L A I M S

What is claimed is:

Please add new claim 13 and amend claims 1-12 to read as follows:

1. (Currently Amended) Method In a method for friction welding, ~~whereby~~ in which one of the parts to be joined is oscillated by means of an electromagnetic oscillator, ~~characterised in that~~ the improvement comprising the step of electrically braking the oscillator is electrically braked after the controlled stimulation of oscillations and a pre-determinable oscillation period.

2. (Currently Amended) Method according to claim 1, ~~characterised in that~~ wherein the stimulation of oscillations and the braking action are effected by alternately ~~energising~~ energizing two electromagnets with opposing actions, ~~that~~ wherein in dependence on the

respective direction of movement of the oscillator, upon the stimulation of ~~the~~ oscillations an electromagnet that supports the movement is energized, and upon braking, an electromagnet that inhibits the respective movement is energised energized, and that wherein during the braking action the ~~energisation~~ energization process is halted once a predetermined oscillation amplitude has been reached.

3. (Currently Amended) Method according to ~~any one of the preceding claims, characterised in that~~ claim 1, wherein the stimulation of oscillations and the braking action in each case take less than 80 ms.

4. (Currently Amended) ~~Arrangement~~ In an arrangement for friction welding, ~~in which an oscillator is provided by means of which one of the~~ having a oscillator for oscillating parts to be joined ~~is oscillated and~~ which is powered by electromagnets with opposing actions, ~~characterised in that~~ the improvement wherein an output of a displacement sensor ~~(11)~~ which registers the respective position of the oscillator ~~(4, 5, 6)~~ is joined to an input of a controller ~~(12)~~ which that is linked on the output side

to inputs of a power-circuit output stage (13) for energisation energization of the electromagnets (2, 3).

5. (Currently Amended) Arrangement according to claim 4, characterised in that wherein the controller (12) activates the power-circuit output stage (13) in such a manner that, in dependence upon the respective direction of movement of the oscillator, (4, 5, 6) an electromagnet (2, 3) supporting the movement is energised energized.

6. (Currently Amended) Arrangement according to ~~either of claims 4 or 5~~, characterised in that claim 4, wherein an electromagnet (2, 3) inhibiting the respective movement is ~~energised for~~ energized for braking, and that wherein during the braking operation the energisation energization is halted once a predetermined oscillation amplitude has been reached.

7. (Currently Amended) Arrangement according to ~~any one of claims 4 to 6~~, characterised in that claim 4, wherein the power-circuit output stage (13) is constituted from a first bridge arm comprising two solid-state switching devices (T3,

T6) connected in series, with parallel-connected ~~free-wheeling~~ free-running diodes (D3, D6), and two further bridge arms which respectively comprise a series-parallel connection for a solid-state switching device (T1, T2) and a diode (D4, D5), ~~that the~~; wherein coils of the electromagnets ~~(2, 3)~~ are connected on the one hand between the junction point of the solid-state switching devices (T3, T6) of the first bridge arm and, on the other hand, a respective junction point of the other bridge arms, ~~that;~~ and wherein the solid-state switching devices (T3, T6) of the first bridge arm are activated at the oscillation frequency and the solid-state switching devices (T1, T2) of the further bridge arms are activated in a pulse-width-modulated or tolerance-band-regulated manner, and such that higher frequencies than the oscillation frequency ~~may~~ can result, depending on the control state.

8. (Currently Amended) Arrangement according to claim 7, ~~characterised in that~~ wherein the diodes (D4, D5) of solid-state switching devices (T4, T5) are constituted ~~with the~~ by ~~free-wheeling~~ free-running diodes (D4, D5) connected in parallel.

9. (Currently Amended) Arrangement according to claim 8, ~~characterised in that~~ wherein the ~~energisation~~ energization of the electromagnets ~~(2, 3)~~ is alternated by way of the other bridge arms from one operating cycle to the next.

10. (Currently Amended) Arrangement according to ~~any one of claims 4 to 9,~~ ~~characterised in that~~ claim 4, wherein means for constituting a trigger signal to ~~energise~~ energize the respective electromagnet ~~(2, 3)~~ are configured in such a way that the trigger signal occurs a predeterminable fraction, preferably one quarter, of the length of an oscillation after an oscillation's passage through zero.

11. (Currently Amended) Arrangement according to ~~any one of claims 4 to 10,~~ ~~characterised in that~~ claim 4, wherein the controller ~~(12)~~ incorporates an integral-action component which is pre-set at a substantial level right at the start.

12. (Currently Amended) Arrangement according to ~~any one of claims 4 to 11,~~ ~~characterised in that~~ claim 4, wherein the oscillator ~~(4, 5, 6)~~, inclusive of its resilient mounting ~~(5)~~ and the workpiece holder ~~(6)~~, the displacement sensor

~~(11)~~, the controller ~~(12)~~, the power-circuit output stage ~~(13)~~ and the electromagnets ~~(2, 3)~~, form an oscillating circuit whose resonant frequency is substantially determined by the natural frequency of the oscillator ~~(4, 5, 6)~~, inclusive of the latter's resilient mounting ~~(5)~~ and the workpiece holder ~~(6)~~.

13. (New) Arrangement according to claim 10, wherein said fraction is one quarter.